Operational Waste Management Plan

Proposed Residential Flat Building

At 17-21 Pennsylvania Road, Riverwood

On behalf of SGCH Portfolio Limited

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Revision Record

No.	Author	Reviewed/Approved	Description	Date
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5.				

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Executive Summary

This operational waste management plan (OWMP) outlines the waste management processes, equipment and construction requirements and identifies the various waste streams and volumes that are anticipated for the proposed residential development located at 17-21 Pennsylvania Road, Riverwood.

A summary of the proposed development and waste management processes are outlined below:

- Proposed Equipment:

Building A

  - 6x 660L waste bins
  - 5x 660L recycling bins
  - 3x 240L green waste bins

Building B

  - 6x 660L waste bins
  - 5x 660L recycling bins
  - 3x 240L green waste bins

- Refuse collections:
  - Collections will be conducted by Council.
  - Waste collections will occur weekly for waste and recycling and fortnightly for green waste bins.
  - All refuse collections will occur via kerbside collection along the site frontage.
  - 6m^2 space for infrequent disposal of bulky items and electronic waste will be provided within both refuse rooms. Details are to be arranged with the building management.
  - A bin wash area with hose cock will be provided within the refuse rooms.
- Refuse storage:
  - All refuse will be stored in refuse rooms located on the ground floor and will adequately accommodate all bins, equipment and storage areas.
- Refuse disposal:
  - Residents will dispose of all waste and recycling directly to the refuse room on the ground floor via the stair and lift cores in each building.

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1. Introduction

1.1. Background

TTM Consulting has been engaged by SGCH to prepare an OWMP to support the proposed residential flat building located at 17-21 Pennsylvania Road, Riverwood. It is understood that a development application will be submitted to the City of Canterbury Bankstown.

This OWMP has been updated to incorporate responses to the waste items identified in the information request issued by the City of Canterbury Bankstown on 18th November 2020 (application reference DA-757/2020).

1.2. Scope

The content of this plan is intended to provide information in reverse order to the typical movement of waste streams from disposal to collection. The reverse order provides context for refuse collection, storage and transfer. Information about refuse disposal and disposal points is given for each use area within the development. The items covered within the report are explained in Table 1.1.

Table 1.1: Scope Items

Item	Explanation
Refuse streams	Identification of refuse streams and anticipated refuse volumes to be produced
Refuse separation	Recommendations for appropriate segregation methods for each refuse stream
Refuse collections	Assessment of refuse collection vehicle (RCV) access and manoeuvring
Refuse storage	Detailed analysis of refuse storage facilities and design
Refuse transfer	Assessment of refuse transfer between refuse storage and collections areas
Refuse management equipment	Identification of recommended and optional refuse management systems and equipment
Refuse management operations	Recommendations for operational efficiency and ongoing management, including refuse minimisation, tenant education and safety
Building design	Recommendations for design of refuse management facilities

Detailed information including refuse calculations, site plans and drawings, recommended refuse management equipment and system specifications, common refuse signage as well as a list of terms and abbreviations are provided in the appendix.

The recommendations in this report relate to the operational phase of the development. Additional requirements for refuse management during or after demolition or construction phases are not concluded and require a dedicated plan.

The provisions as outlined in this report are considered appropriate for this type of development. It is noted that the refuse rooms are suitably sized to accommodate the waste generated and number of bins proposed based on standard storage and collection methods. The refuse rooms indicated will also accommodate all options for alternate equipment and disposal methods.

1.3. Regulatory Considerations

The plan satisfies Council's requirements by providing the following information:

- Type and quantity of refuse materials that would be generated during the occupancy of the proposed development.
- Refuse collection, storage, transfer and disposal arrangements during occupancy of the completed development.
- Recommended operational requirements for the operational phase of the development, and design requirements for the building and refuse management facilities.

TTM has referred to Council requirements as outlined in Section 9 Waste Management of Part B General Controls DCP. Table 1.2 demonstrates the refuse management items addressed to align with Council's requirements.

Table 1.2: Refuse Management Compliance Checklist

General Objectives	Compliance	Comments
O1) To ensure that facilities for handling, storage, collection and disposal of waste are incorporated into all development and are compatible with the design of the development.	✓	• The refuse rooms provide storage space for the required number of bins designated in Council's waste policy. • All waste management arrangements are outlined in the OWMP below.
O2) To encourage the reduction in the generation of waste and maximise reuse and recycling of building/construction materials, household generated waste and industrial/commercial waste through: (a) Practical building designs and construction techniques, (b) Design and location of waste facilities, that will assist waste and recycling collection and management services offered by Council and private contractors; and (c) Waste facilities that are easy to use for occupants.	✓	• A separate demolition and construction plan is provided. • Refuse will be disposed of directly to the refuse rooms. • Collections will occur via kerbside and within 10m of the property boundary for servicing contractors.

1.4. Site Location

The subject site is located at 17-21 Pennsylvania Road, Riverwood, as shown in Figure 1.1 and Figure 1.2. The property description is Lot 377 on DP225388. The site has road frontage to Pennsylvania Road, Union Street and Hunter Street and is currently vacant land.

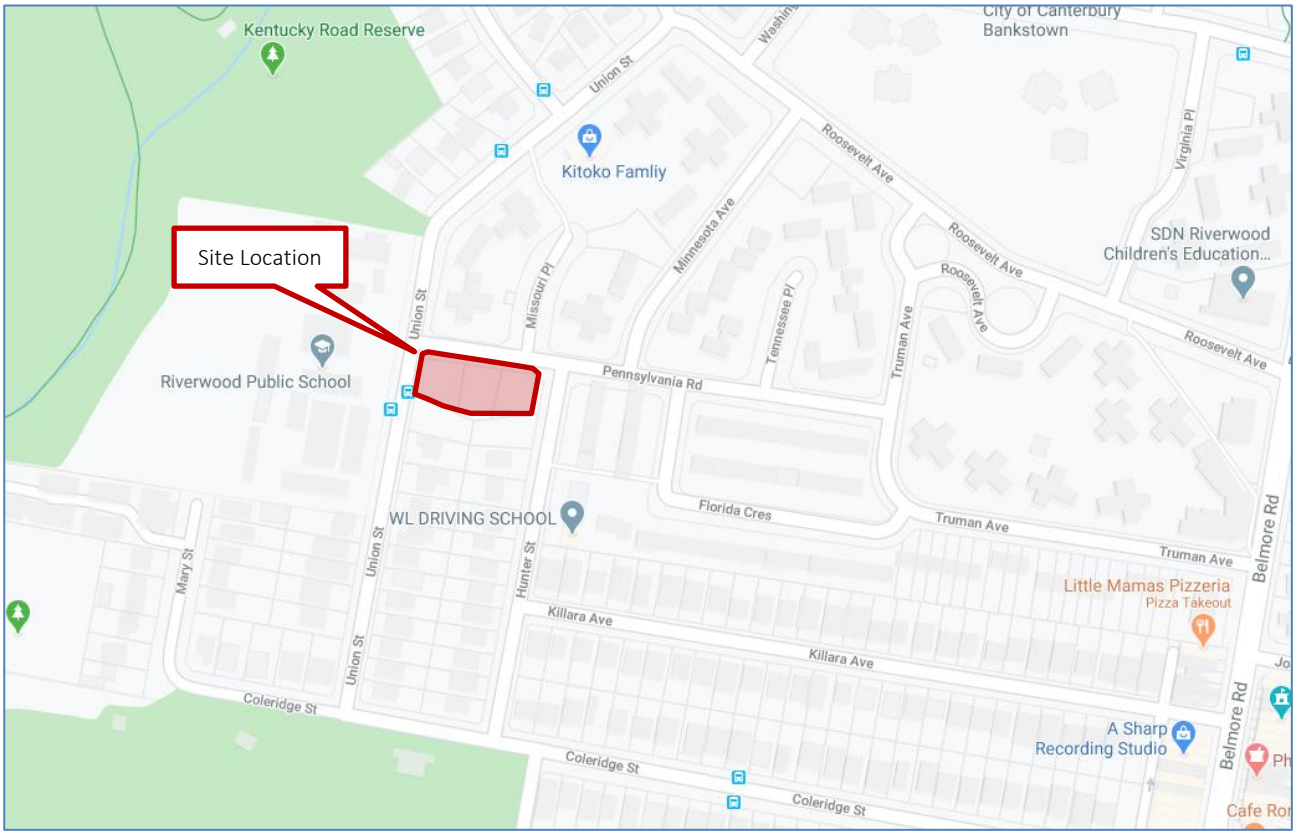


Figure 1.1: Site Location (Map View)

Figure 1.2: Site Location (Satellite View)

1.5. Development Summary

The proposed development consists of 2 buildings with a total of 51 units (with a mix of one and two-bedrooms). Building A has a total of 26 units and Building B has a total of 25 two-bedroom units.

All refuse will be stored onsite in proximity to the property boundaries for kerbside servicing. Carparking is provided via the basement level.

1.6. Development Refuse Profile

Table 1.3 demonstrate the anticipated volumes for each of the commonly separated refuse streams. All calculations and equipment requirements are based on the development schedules and common waste generation rates as outlined in the detailed information in Appendix A.

Table 1.3: Refuse Summary

Quantity	Measure	General Waste (L / Week)	Commingled Recycling (L / Week)	Green Waste (L / Week)
51	units	7,140	4,080	2,550

2. Refuse Management

This section describes the arrangements for the collection, storage, transfer and disposal of refuse within the development. This includes associated bin quantities, storage capacities, equipment details, collection frequencies and site access details.

2.1. Refuse Collection

This section summarises the refuse collection arrangements proposed for this development.

2.1.1. Bin Quantities

Table 2.1 below outlines the number of bins per collection. The calculations are based on the generated refuse volumes summarised in Section 1.6. As waste volumes may vary according to the development and the occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation.

Table 2.1: Bin Equipment

Refuse Stream	Bins Size	Number of Bins per Collection
General Waste	660L	12
Commingled Recycling	660L	10
Green Waste	240L	6

2.1.2. Collection Cycle

Refuse will be serviced by Council via kerbside collections. Collections are based on a weekly cycle for both waste and recycling, with green waste collected on a fortnightly cycle.

The building manager / caretaker will consult with Council to finalise service days and service arrangement details.

2.1.3. RCV Arrangements

RCV's will utilise on-street kerbside collection via the kerbside frontage. RCV's will be parking in close proximity to the refuse rooms via the Pennsylvania Road frontages.

The proposed development plans demonstrate an indicate kerbside storage area of at least 5m x 1m for green waste bins.

2.2. Refuse Storage

Refuse will be stored in the refuse rooms on the ground floor. Each refuse room will store the required number of bins to accommodate the development.

The refuse rooms will have an enclosed space with separate access, of at least 6m^2 per building for bulky good storage and bins wash facilities. Residents will coordinate all bulky goods movements with building management prior to disposal, to avoid dumping.

The refuse room allows for 2m aisles and doorway width to transfer bins. The rooms allow for adequate space to be configured to achieve 0.15m between each bins. Bins will be positioned to open along the long side for residents to be able to place their rubbish inside the bin.

2.3. Refuse and Bin Transfer

Residents will transfer all waste and recycling via the lift and stair cores directly to the refuse rooms located on the ground floor.

All bulk bins will be transferred from the refuse rooms to the kerbside on during servicing by Council contractors. The development plans have been updated to show the required bin transfer path, no greater than 1:30, with kerb ramps to allow for no steps and obstacles. The green waste bins will be transferred by building management the evening prior to collections and positioned on the kerbside for servicing.

Building A will have a direct route, with an approximate 8m transfer route from the bin room to the kerb. Due to the site geometry and required bin transfer grades, Building B can achieve a 14m transfer route to the kerbside.

Bulky goods will be transferred to the kerbside by building management as required.

2.4. Refuse Disposal

The tables in this section summarise the requirements for frequently generated and infrequently generated refuse within the development.

Frequently generated waste considers material streams that are generated in high volumes for any given period and require significant capacity for storage prior to collections. Infrequently generated waste includes material streams that that are generated in relatively low volumes, and where minimal provision for storage can be easily managed by collection frequency.

2.4.1. Frequent Refuse

Table 2.2: Disposal of Frequently Generated Waste

Frequently Generated Waste Streams	
Refuse Stream	**Disposal Details**
WASTE	
General Waste	**Disposal** Residents will have receptacles within their individual units for collection and storage of at least one day of general waste. Bins are typically placed under the kitchen sink. Additional bins can be placed in other areas as required. Waste bins should always be lined with bags and the bags tied before removal. Waste bins should be accompanied by a recycling bin (commingled recycling or bins for cardboard, paper, plastics, glass etc.) in order to facilitate separation of general waste and recycling. General waste should weigh approximately 3 kg or less. **Transfer** Once full, residents will dispose directly to the refuse room for each building via the stair and lift cores.
Organic (Food) Waste	Separating organic or food waste from general waste may be considered to reduce the total amount of general waste produced. Apartment style equipment such as an organic household composter or worm farm is available for use where practical and space allows. Composting should be arranged with the building caretaker. Alternatively, green waste bins are provided in line with Council requirements.
RECYCLING	
Commercial Comingled, including • glass • aluminium • steel cans • tins • paper • small cardboard • semi rigid plastics	**Disposal** Residents will have receptacles within their individual units for collection and storage of at least one day of recycling. Recycling bins are typically placed under the kitchen sink next to the general waste bin. Additional recycling bins can be placed in other areas as required. Recycling bins will usually be used for all recycling materials (comingled recycling). However, cardboard, paper, plastics, glass etc. can be collected separately if required. **Transfer** Once full, residents will transfer / carry their recycling to the refuse room in the basement. Items for recycling must not be bagged and disposed in loose form.

2.4.2. Infrequent Refuse

Table 2.3: Disposal of Infrequently Generated Waste

Refuse Stream	Disposal Details
Green Waste	Green waste is not typically produced from a development of this type other than from surrounding landscaped areas or potted plants. Green waste is usually removed by the designated maintenance contractor. The contractor engaged for this work will be required to send this material to a composting or resource recovery facility rather than to a landfill if locally available.
Hard Waste / Bulky Goods	At least 6m^2 is provided for bulky goods storage in the refuse room for each building. Hard waste / bulky goods will be collected on designated days during the year. Further information can be found on Council's website. Residents must coordinate all bulky goods movements and storage with the building manager/s. It is prohibited for residents to stack or pile bulky goods items on the footpaths, in driveways, or in carparks. Unless otherwise instructed by council, charitable organisations may be contacted by the building manager/s as a mode for collections.
Hazardous Waste (paints, batteries and cartridges) **Electronic Waste**	Where applicable, occupants usually make their own arrangements for the disposal of specialised or hazardous waste and electronic waste such as recycling of toner cartridges and batteries. Please refer to local council and state government websites for disposal options. It is an expectation that the building management assist with disposal of hazardous, electronic or liquid waste and any paint or chemicals as required and requested. Hazardous waste must be handled with due care, separated and securely stored for collection by a specialist waste contractor. Please refer to local council and state government websites for further information.

3. Recommended Operational Requirements

3.1. Operational Equipment Summary

Equipment required or suitable for use as part of the operational phase of the development is outlined in Table 3.1. Lists of equipment, equipment suppliers and refuse management service providers for use during the operational phase of the development can be found in Appendix C.

Table 3.1: Equipment Schedule

Description	Quantity	Notes
Waste Bins	12	660L bins – See Appendix C.1
Commingled Recycling Bins	10	
Green waste bins	6	240L bins – See Appendix C.1

3.2. On-going Management

Responsibilities have to be assigned for all on-going refuse management operations and generally conducted by a building manager/ waste caretaker. Table 3.2 to Table 3.8 are designed to help manage responsibilities and monitor the refuse operations in order to maintain efficient services and a safe environment.

Table 3.2: General Refuse Management Checklist

Objectives	Checked	Remarks
Organising all waste, recycling and green waste pick-ups.		Liaise with Council as required.
Managing bin transfers as required.		

3.2.1. Safety

Transferring refuse bins and using refuse management equipment are considered hazardous tasks. Therefore, contractors must ensure that a full risk assessment of equipment, surfaces and related gradients is complete. The contractor must provide procedural documentation to appropriate personnel prior to delivery of equipment and occupancy of the development.

Table 3.3: Safety Checklist

Objectives	Checked	Remarks
Abiding by all relevant occupational health & safety legislation, regulations and guidelines to ensure site safety for residents, visitors, staff and contractors.		
Assessment of any manual handling risks and preparation of a manual handling control plan for waste and bin transfers.		
Provision of equipment manuals, training, health and safety procedures, risk assessments and personal protective equipment to staff / contractors in order to control hazards associated with all waste management activities.		

3.2.2. Cleaning and Maintenance

Regular cleaning and maintenance of all refuse management facilities is important to maintain a safe and hygienic environment for residents, visitors, staff and contractors. All on-going management tasks and duties includes and is not limited to the below table.

Table 3.4: Cleaning and Maintenance Checklist

Objectives	Checked	Remarks
General maintenance and cleaning of all refuse holding areas including bins and associated equipment.		
Coordination of management and reporting of all waste issues (broken bins, missed services etc)		
Coordination of private bin cleansing contractors as required.		
Coordination of all bulky goods movements and required transfers to the kerbside for collection.		

3.2.3. Refuse Minimisation

Refuse minimisation is an important part of any site operation. At a minimum, the following should be implemented. Additional refuse minimisation options can be found in Appendix C.

Refuse minimisation requires regular reviewing to ensure operational sustainability of refuse volumes, equipment and economic feasibility. It is recommended that refuse weights and movements are noted and reviewed. An external review is usually conducted 12 to 18 months after the development is operational.

Table 3.5: Refuse Minimisation Checklist

Objectives	Checked	Remarks
Regular review of material quantities to avoid overflow.		
Consideration of secondary and recycled materials where possible.		
Encouraging refuse minimisation through education and signage (see below).		
Reduce refuse through continuous monitoring and review (see below).		

3.2.4. Education and Communication

On-going education is important to ensure people continue to use the facilities as originally intended. All body corporate and leasing contracts should contain clauses pertaining to waste management arrangements and use of any associated equipment.

Table 3.6: Education and Communication Checklist

Objectives	Checked	Remarks
Communication of refuse management arrangements to residents, staff and contractors as required.		
Consideration of promotional opportunities for any successes e.g. awards programs.		

3.2.5. Signage

All receptacles, bins and other refuse management equipment will have adequate signage. Standard signage will be provided in and around waste collection and storage areas (see Appendix D).

Table 3.7: Signage Checklist

Objectives	Checked	Remarks
Ensuring compliance of signage with local council regulations.		Use signage provided by Council if available.
Ensuring that labelling on bins, refuse room etc. is appropriate and clear and easy to read and updated if required.		

3.2.6. Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management or waste caretaker for maintenance and sustainability.

Table 3.8: Monitoring and Review Checklist

Objectives	Checked	Remarks
Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.		
Regular review of refuse management equipment and facilities such as bin volumes, refuse storage capacities and stormwater management arrangements.		

4. Recommended Design Requirements

This section lists recommended design requirements for the building and refuse management facilities. They should be considered for optimal refuse management within the development, and to comply with relevant regulations and Council requirements.

4.1. Refuse Rooms

The refuse rooms will have the following features in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Be insect and vermin proof.
- Fire rated and ventilated in accordance with the National Construction Code – Building Code of Australia.
- Doors must be wide enough to allow for the easy removal of the largest container to be stored.
- The walls, ceilings, floors and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning.
- The floors to be graded to fall to a drainage point.
- Drainage points connected to sewer in accordance with trade waste requirements.
- A hose cock must be provided inside the room for cleaning bins and the rooms.
- Adequate artificial lighting.
- Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage).
- Permit unobstructed access for removal of the containers to the service point and for positioning the containers correctly in relation to the chutes.
- Will be attractively designed to minimise their visual impact on the surrounding areas.
- Does not have any steps or lips.
- Is enclosed on all sides except for the gated entrance to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site.
- Is of sufficient size to accommodate the bins with sufficient clearance around the combined bin area.
- The height of the bin storage area allows for waste bins to be opened and closed.

4.2. Bin Carting

The bin carting route will the following features:

- Is via the hard stand pathways.

- Allows bins to be easily manoeuvred.
- Is clear of speed control devices or similar provisions.
- Does not impede traffic flow.
- Does not extend through any habitable parts of a building or food premises.
- Does not exceed 15 metres or graidents larger than 1:30.
- Does not have any lips, stairs or steps for bins to be manoeuvred easily.

4.3. Bin Wash

A bin wash-down facility will be provided within the refuse rooms. It will have the following features:

- Constructed hardstand with a solid concrete base.
- Roofed and designed to prevent entry to rainwater.
- Graded to fall to a drainage point that is connected to sewer in accordance with trade waste requirements.
- Provided with a hosecock for cleaning.
- Is in a purpose-built storage area which is air locked, fly and vermin proofed, and used solely for the storage of waste.

4.4. Storm Water Prevention and Litter Reduction

Designated staff / cleaners are responsible for on-site storm water pollution and litter reduction. To limit the impact on the environment and site, the following measures should be taken into account:

- Providing adequate signage to promote litter control.
- Providing sufficient refuse bins in appropriate areas.
- Preventing unauthorised entry to waste areas.
- Monitoring waste and prevent waste overflow.
- Promoting best practices for waste minimisation.
- Installing litter traps in car parks for any unwanted discharge.

4.5. Ventilation

Natural or mechanical ventilation must be provided to waste storage areas unless refrigerated below 4˚C. Natural ventilation means unobstructed, permanent openings direct to external air no less than one-twentieth (1/20) of floor area. Mechanical ventilation requires at least 100L/s and 5L/m^2 exhaust rate.

Appendix A Detailed Refuse Calculations

The generation rates used for the calculation of refuse produced uses rates recommended by the Canterbury-Bankstown City Council.

As requested by Council, the general waste generation rate has been updated to be in line with the upcoming policy.

Table A.1: Generation Rates

Use Type	Measure	General Waste (L/week)	Commingled Recycling (L/week)	Green Waste (L/week)
Residential Apartments (1 & 2 bedroom)	L / Week	140	80	50

Table A.2: Building A Refuse Calculations

Description	Measure	Quantity	General Waste (L/Week)	Commingled Recycling (L/Week)	Green Waste (L/week)
1-Bedroom	Units	8	1,120	640	400
2-Bedroom	Units	18	2,520	1,440	900
Volumes (L / Week)		**26**	**3,640**	**2,080**	**1,300**
Volumes per Day (L / Day)			**520**	**297**	**186**
Volumes per Collection (L / Collection)			**3,640**	**2,080**	**1,300**
Collection and Equipment Details	Collections Per Week		1	1	1 (fortnight)
	Storage Capacity (Days)		7	7	14
	Bin Size (L)		660	660	240
	Bin Quantity Provided		6	5	3
	Total Raw Bin Area (m^2)		5	4	1.4
	Refuse Storage Room Size (m^2)		33		
	Bulky Goods Area (m^2)		6		

Table A.3: Building B Refuse Calculations

Description	Measure	Quantity	General Waste (L/Week)	Commingled Recycling (L/Week)	Green Waste (L/week)
1-Bedroom	Units	11	1,540	880	550
2-Bedroom	Units	14	1,960	1,120	700
Volumes (L / Week)		**25**	**3,500**	**2,000**	**1,250**
Volumes per Day (L / Day)			**500**	**286**	**179**
Volumes per Collection (L / Collection)			**3,500**	**2,000**	**1,250**
Collection and Equipment Details	Collections Per Week		1	1	1 (fortnight)
	Storage Capacity (Days)		7	7	14
	Bin Size (L)		660	660	240
	Bin Quantity Provided		6	5	3
	Total Raw Bin Area (m^2)		5	3	1.4
	Refuse Storage Room Size (m^2)		72		
	Bulky Goods Area (m^2)		8		

Appendix B Site Plans and Drawings

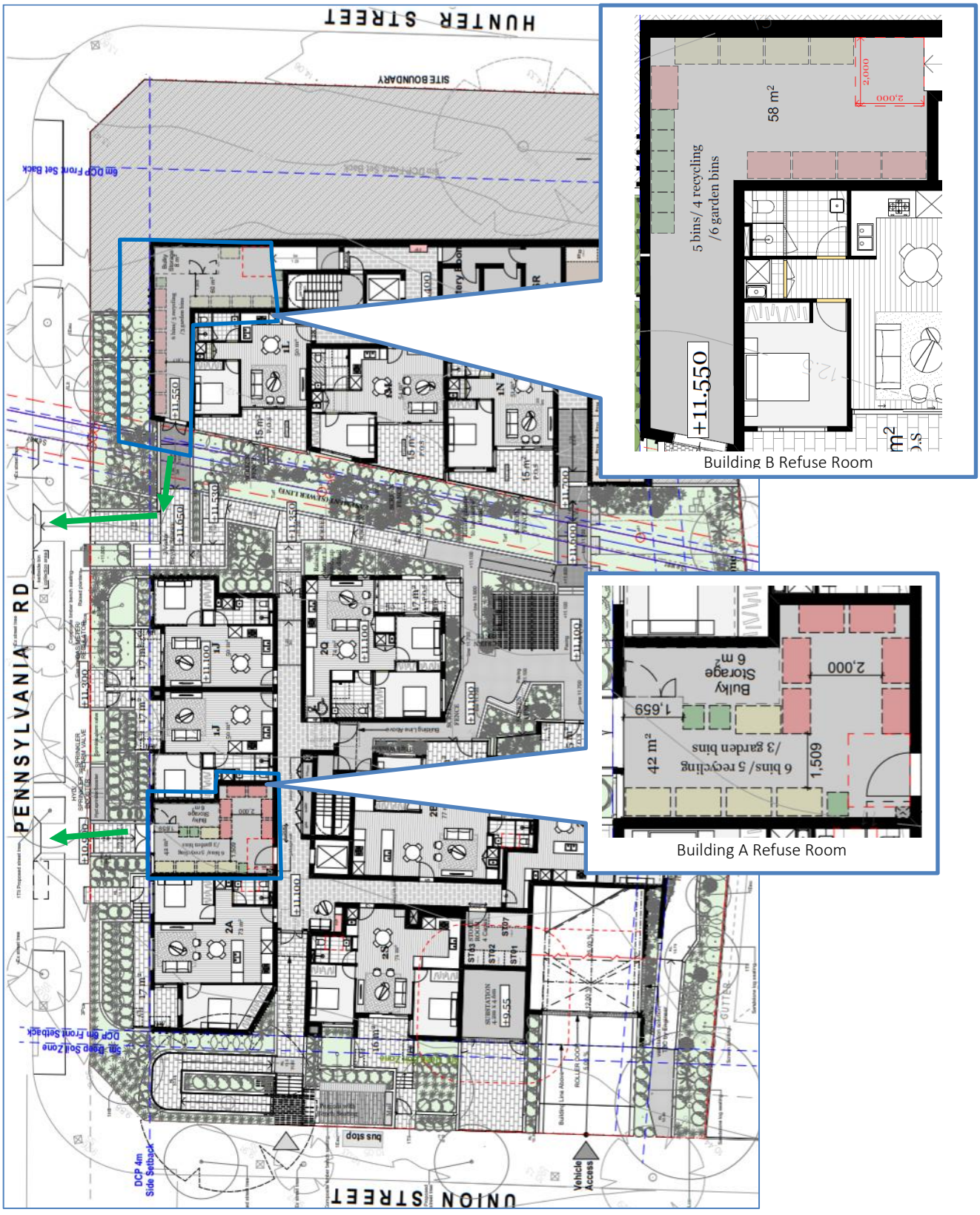


Figure B.1: Ground Floor

Source: DKO, Drawing Number DA201, Revision 07, dated 05/05/2021 – Ground Floor

Figure B.2: Level 2

Source: DKO, Drawing Number DA203, Revision 05, dated 05/05/2021 – Level 2

Appendix C Systems and Specifications

C.1 Refuse Bins and Equipment

Table C.1: Typical Refuse Bins

Bin Types	Waste Streams	Examples	Information
Residential unit bins	General waste and recycling	 	Various options and sizes. Built and standalone bin available.
240L	Food waste		Council 1065mm (H) x 540mm (D) x 500mm (W)
660L bin	General waste and recycling	 	Council 1300mm (H) x 780mm (D) x 1260mm (W)
Organics household composting or worm farm (optional)	Food waste / organics	   	Organics / food waste separation and composting. Examples Bunnings Urban Composter https://www.urbancomposter.com.au Closed Loop http://www.closedloop.com.au/products-and-services/organic-recycling

C.2 Refuse Transfer and Disposal Methods

Table C.2: Refuse Transfer and Disposal Methods

Method	Examples	Description
Manual transfer	 	**Manual transfer** is simply the process of physically carrying waste bags, food waste receptacles or recycling boxes and crates without assistance. From a safety perspective, this is acceptable for small quantities and initial disposal into refuse chutes, refuse compartments or, in the case of ground level activities, directly into the refuse storage room. • **Waste** material should be bagged prior to any transfer from apartments, suites, offices, back-of-house areas etc. to waste storage compartments or rooms. • **Food waste** should be placed in receptacles such as a caddy style bin or bucket which will not allow leakage during transfer. • **Recycling** material should be placed in boxes or crates prior to transfer. • **Cardboard** and paper items can be placed within another cardboard box for transfer.
Assisted manual transfer	  	**Assisted manual transfer** includes the use of any wheeled container, wheelie bin or trolley with a capacity to carry refuse items with a combined weight of 20kg and above. The equipment bares the weight of the material, but it still requires physical force and or balance to move the bin or trolley. From a safety perspective, this type of equipment should be a minimum requirement for transfer of material greater than 20kg and when transferring between individual levels to the refuse storage room or loading areas. Use of enclosed or caged equipment will also eliminate 'litter or leakage trails' which can occur when using open or unsealed equipment.

C.3 Refuse Minimisation Options

Table C.3: Waste Minimisation Options

Systems	Description
Waste Conversion	Converting waste by reducing its volume and weight means less material to be disposed of, which results in fewer refuse collection vehicle kilometres. This allows cost savings in logistics and has a positive environmental effect due to less fuel used per amount of waste to be disposed. As an example, OMPECO provide a solution for converting general and medical waste into a sterilised, dehydrated ground material as shown below. The process involves loading the sterilisation chamber with waste material and crushing / shredding of the material by rotors to produce a fine ground. During the process, the material is heated by friction to 100˚C which causes the moisture in the waste material to evaporate. After evaporation, the material is heated further to sterilisation or pasteurisation. The ground material is then cooled down to be unloaded from the converter. The final product has excellent long-term handling and storage properties, the it has up to 80% less volume and 50% less weight than the original waste material. It can be used in waste to energy systems as it is comparatively dry with a high calorific value.  Sources: http://www.ompeco.com/italian/language/en/home-2/#
Composting	Food waste composing is an option of reducing the amount of general waste going to landfill. Systems of different scales exist from small benchtop composters for individual households or apartments to commercial size systems. Examples are shown below. The process usually involves breaking down organic food scraps through natural processes. This includes systems such as worm farms or composters where microbes break down the food waste, with or without the aid of compost additives. The composted products are rich in nutrients and good bacteria, and they can be added to flower bed or gardens. Most food wastes and other organic (garden) material can be composted including meat, fish, vegetables, fruit, dairy, coffee or wilted flowers. However, large bones, excessive liquids such as cooking oil or seafood shells should not be placed in the composers.  Sources: https://www.urbancomposter.com.au, http://www.closedloop.com.au/domestic-composter, http://www.closedloop.com.au/products-and-services/organic-recycling

C.4 Refuse Management Equipment Suppliers

Table C.4: Equipment Suppliers

Waste Management Equipment	Compactors	Bin Tugs / Trailers	Trolleys / Manual Handling Equipment	Weighing Systems	Composting	Bins (General), Bin Stands	Bin Cleaning Equipment
Elephants Foot Recycling Solutions http://www.elephantsfoot.com.au	✓			✓			
Waste Initiatives https://wasteinitiatives.com.au	✓						
Wastech http://wastech.com.au	✓						
Pakmor http://pakmor.com.au	✓			✓			
Miltek http://www.miltek.com.au	✓						
Materials Handling https://www.materialshandling.com.au		✓	✓			✓	✓
Spacepac http://ev.spacepac.com.au		✓	✓				
Spacepac Solutions http://www.spacepac.com.au		✓	✓			✓	
Electrodrive / Lift Master http://www.electrodrive.com.au		✓					
Closed Loop Organics http://www.closedloop.com.au/domestic-composter					✓		
Compost Revolution https://compostrevolution.com.au					✓		
Urban Composter https://www.urbancomposter.com.au					✓		
Rubbermaid https://rubbermaidcommercial.com.au/products/waste-management			✓			✓	
Sulo http://www.sulo.com.au			✓		✓	✓	
Australian Waste Management https://www.australianwastemanagement.com.au/products						✓	

C.5 Refuse Management Service Providers

Table C.5: Service Providers

Specialist Waste Services	Hazardous Waste	Electronic Waste	Construction & Demolition Waste	Waste Water
Cleanaway * https://www.cleanaway.com.au	✓		✓	✓
JJ Richards * https://www.jjrichards.com.au	✓		✓	✓
Veolia * https://www.veolia.com/anz	✓	✓	✓	✓
Suez * https://www.suez.com.au		✓	✓	✓
ToxFree https://www.toxfree.com.au	✓	✓		
AceWaste https://www.acewaste.com.au	✓			

Appendix D Refuse Signage

D.1 Refuse Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by DECC. Standard wall posters and bin lid stickers are available for download and printing from the Local Government section of the DECC website www.environment.nsw.gov.au, in black and white and appropriate coloured versions where applicable.

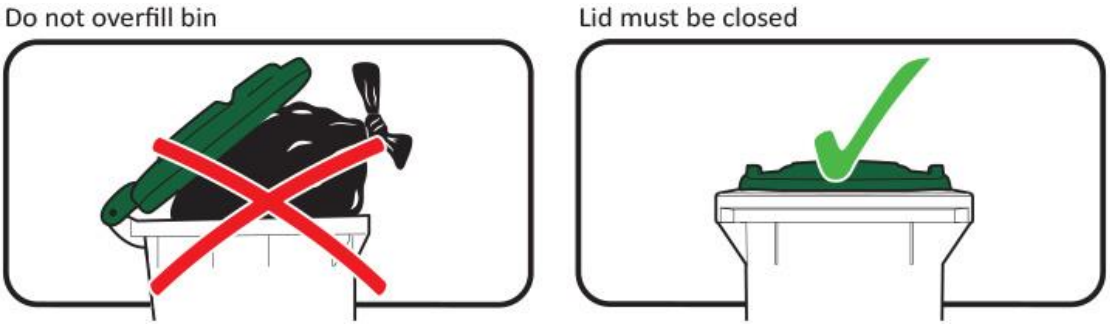
Further information can also be found on https://www.liverpool.nsw.gov.au/services/waste-and-recycling.

Sources: https://www.ryde.nsw.gov.au/Environment-and-Waste/Waste-and-Recycling/Waste-Resources/Units-and-Apartment-Blocks, https://www.liverpool.nsw.gov.au/services/waste-and-recycling/return-and-earn

D.2 Other Refuse, Facility and Safety Signage

Various signage including refuse area, safety and facility signage should be arranged through certified signage providers. Example signs can be found at http://www.signblitz.com.au, https://www.wayout.com.au or https://www.smartsign.com.

Example Refuse Room Signage



Fire Management

Example Facility Signage

Example Safety Signage

Appendix E Terms and Abbreviations

In this OWMP, a term or abbreviation has the following meaning unless indicated otherwise:

TERM	DEFINITION
Bin Storage Area	An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Mobile Garbage Bin (MGB)	A plastic (polypropylene) receptacle that is greater than 360 litres in capacity generally ranging from 0.66 m^3 to 1.10 m^3 used for the storage of refuse.
Collection Point	An identified position where refuse bins are stored for collection and emptying. The collection point can be the bin storage area.
Composter	A container or machine used for composting specific food scraps and/or organic materials.
Cubic Metre (m^3)	Cubic capacity related to refuse areas or equipment.
Green Waste	All vegetated organic material eg. branches, leaves, grass clippings, tree/shrub pruning, plants and flowers.
Kilogram (kg)	Related to refuse weight.
Liquid Waste	Non-hazardous Liquid Waste generated by commercial premises should be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
Litre (L)	Related to refuse volumes.
Mobile Garbage Bin (MGB)	A plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360 litres in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste	Putrescible Waste is the component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling	All material suitable for re-manufacture or re-use, e.g. glass bottles and jars; plastics such as PET, HDPE and PVC; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse	Material generated and discarded from residential buildings including general waste, recyclables, green waste and bulky items.
Refuse Bin	A receptacle used for the storage of refuse, e.g. MGB's ('wheelie bins'), bulk MGB's or bulk bins.
Refuse Collection Vehicle (RCV)	A vehicle that is specifically designed for collecting and emptying refuse bins and refuse compactors.
Refuse Storage Room	An area identified for storing on-site Mobile Garbage Bins or Bulk Bins within the property.
Refuse Tolley	A cart on wheels that can be used to collect smaller quantities of refuse from different areas or rooms of a building or site, and wheel the collected refuse to a (Bulk) Bin storage area where it is disposed. Refuse Trolley are commonly used in hotels.
Regulated Waste	Waste prescribed under legislation as regulated waste.
Square Metre (m^2)	Related to refuse areas.
Tonne (T)	Related to refuse weight.
Transfer (Manual Transfer)	Manual Transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.
Waste	Referred to as refuse material with the exclusion of recycling, green waste, hazardous waste, special waste, liquid waste and restricted solid waste.
Waste (General Waste)	Generally referred to as material free of any contamination such as pathological/ infectious, radioactive materials and/or hazardous chemical. Reporting use is for material considered to be free of food waste.
Rear-Loading Refuse Collection Vehicle (REL RCV)	A truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.